The current trend in the management of urban drainage systems is to return to pre-development conditions that mimic the flow characteristics of natural ecosystems. To do so, cities must implement technologies designed to increase water infiltration and reduce the runoff speed. Pervious concrete is among the new technologies seeking to return paved urban areas to conditions that mirror original soil drainage properties. The prototype described in this study is based on specifications provided by Caderno de Encargos do Departamento de Esgotos Pluviais (DEP) from Porto Alegre, where prototypes of grids similar to those produced by DEP are described, however our prototype was made using pervious concrete. Tests were conducted to compare the mechanical strength of our pervious model and those of DEP, made with conventional concrete. Pervious concrete performed better than conventional concrete in all assessments, suggesting that the application of this technology could be a viable alternative.